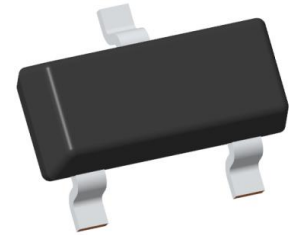


General Description

V _{DSS}	R _{DS(on)} MAX	I _D Max.
20V	30mΩ@4.5V	4.3A
	45mΩ@2.5V	

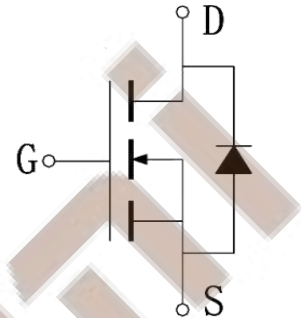
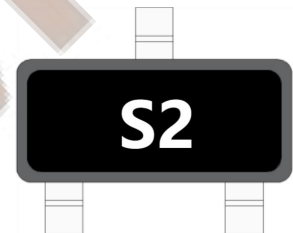


Features

- Trench FET Power MOSFET
- Load Switch for Portable Devices.
- DC/DC Converter.
- Moisture Sensitivity Level 3

Mechanical Data

- SOT-23 Small Outline Plastic Package.
- Epoxy UL: 94V-0.
- Mounting Position: Any.



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
2302A	SOT-23	S2	3000

Absolute Maximum Ratings (Ta=25°C unless otherwise noted)

Parameter	Symbols	Rating	Units
Drain-Source Voltage	V _{DS}	20	V
Gate-Source Voltage	V _{GS}	±8	V
Continuous Drain Current	I _D	4.3	A
Continuous Source Current (Diode Conduction)	I _S	0.6	A
Power Dissipation (note1)	P _D	1250	mW
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-50-+150	°C
Thermal Resistance From Junction to Ambient (note2)	RθJA	100	°C/W

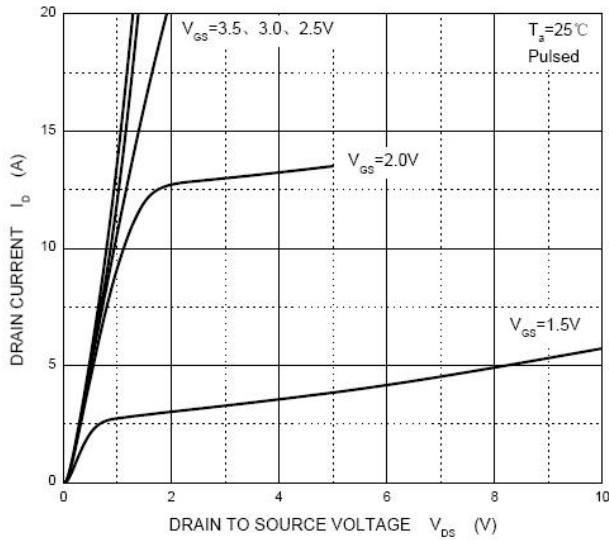
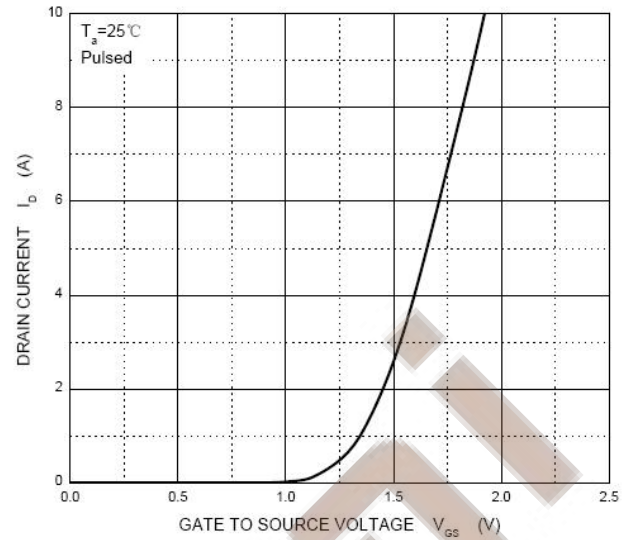
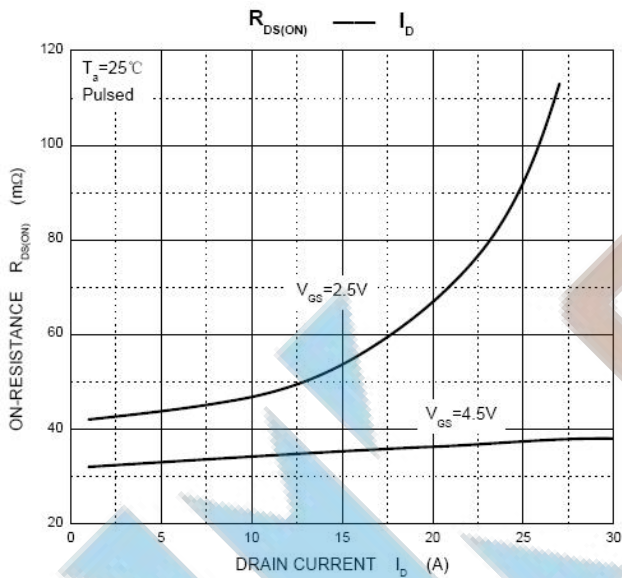
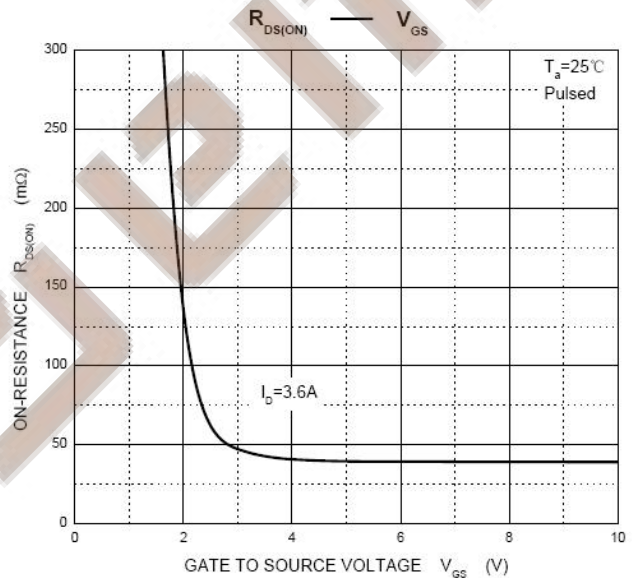
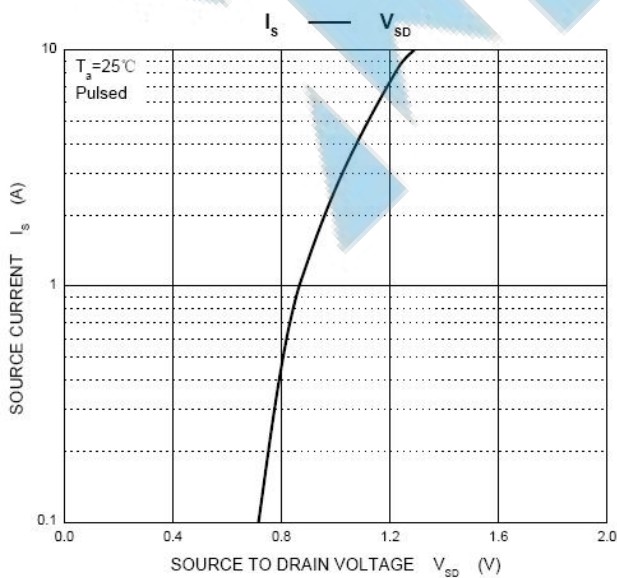
Electrical Characteristics (Ta=25℃, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V(BR)DSS	VGS=0V, ID=10uA	20			V
Gate-Threshold voltage (note3)	V GS (th)	VDS=VGS, ID=250uA	0.65		1.2	V
Gate-body Leakage	IGSS	VDS=0V, VGS=±8V			±100	nA
Zero Gate Voltage Drain current	IDSS	VDS=20V, VGS=0V			1.5	uA
Drain-Source On-Resistance (note3)	RDS(ON)	VGS=4.5V, ID=3.6A		21	30	mΩ
		VGS=2.5V, IC=3.1A		29	45	
Forward trans conductance (note3)	gfs	VDS=5V, ID=3.6A		8		S
Diode forward voltage (note3)	VSD	IS=0.94A, VGS=0V		0.76	1.2	V
Dynamic Characteristics (note4)						
Input capacitance	Ciss	VDS=10V, VGS=0V,f=1MHz		300		pF
Output capacitance	Coss			120		
Reverse Transfer capacitance	Crss			80		
Total gate charge	Qg	VDS=10V, VGS=4.5V, ID=3.6A		4.0	10	nC
Gate-source charge	Qgs			0.65		
Gate-drain charge	Qgd			1.5		
Switching						
Turn-on Time	td(on)	VDD=10V, RL=5.5Ω, VGEN=4.5V, ID=3.6A, RG=6Ω		7	15	ns
Rise time	tr			55	80	
Turn-off Time	td(off)			16	60	
Fall time	tf			10	25	

Notes:

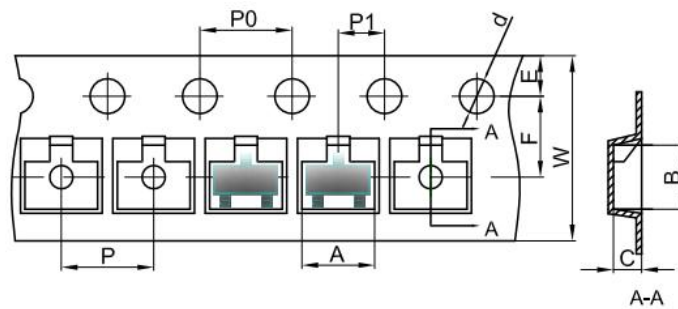
- 1, Repetitive rating: Pulse width limited by junction temperature.
- 2, Surface mounted on FR4 board, $t \leq 10s$.
- 3, Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to producing.

Typical Characteristics

Output Characteristics

Transfer Characteristics


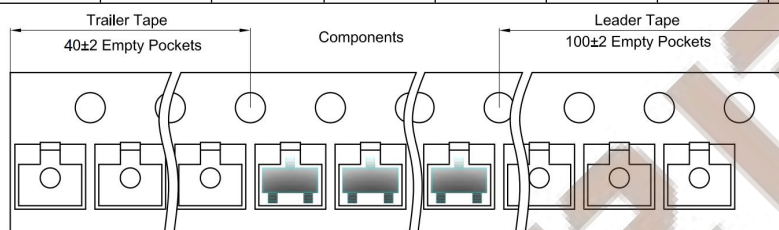
Package Information

Carrier Dimension(mm)

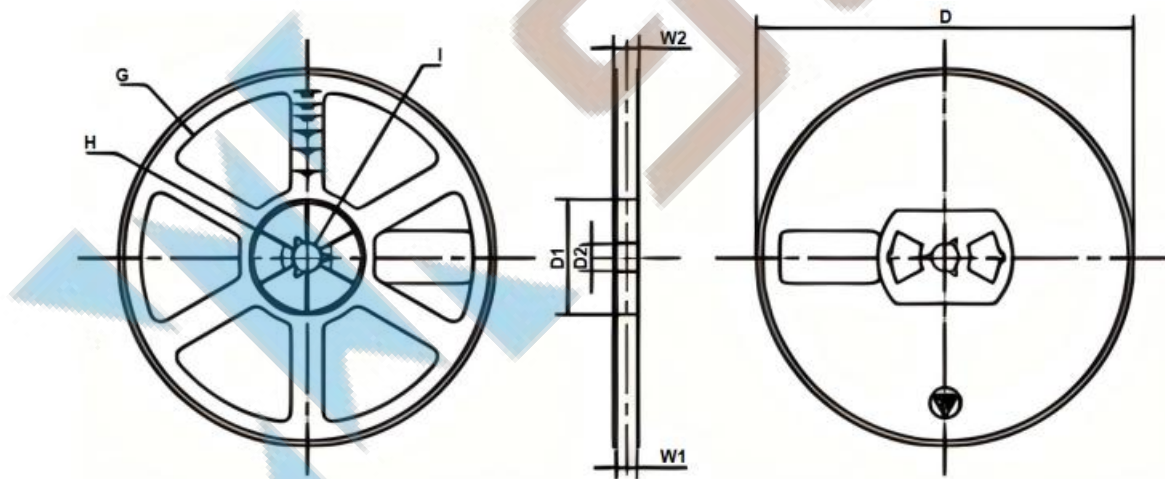


Dimensions are in millimeter

Pkg Type	A	B	C	d	E	F	P0	P	P1	10*P0	W
SOT-23	3.15	2.77	1.22	01.50	1.75	3.50	4.00	4.00	2.00	40.00	8.00
(Tolerance)	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.2	±0.1



Reel Dimension(mm)



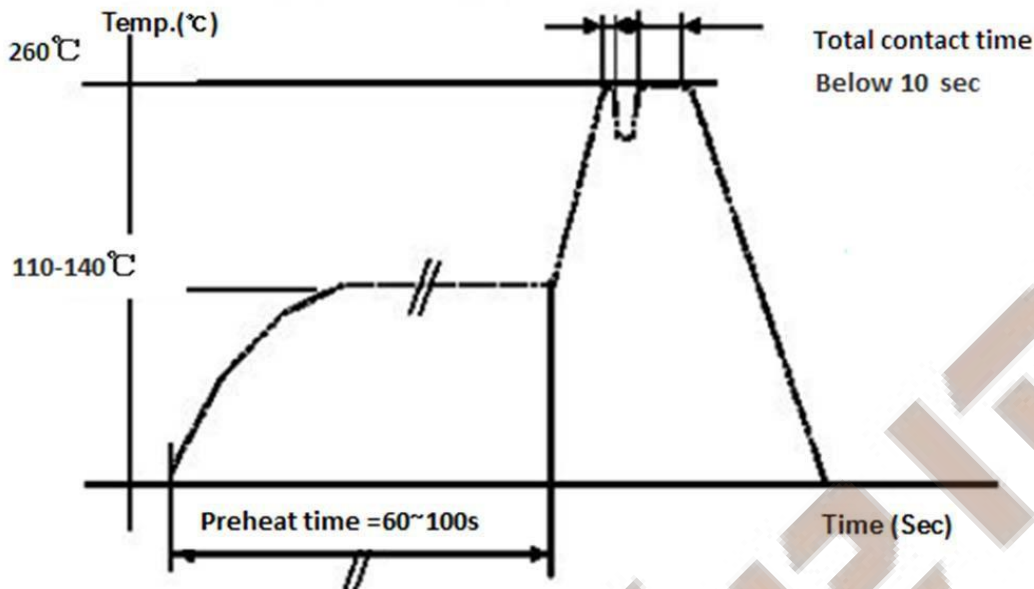
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Φ178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30
Tolerance	±2	±1	±1	±1	±1	±1	±1	±1

Package Specifications

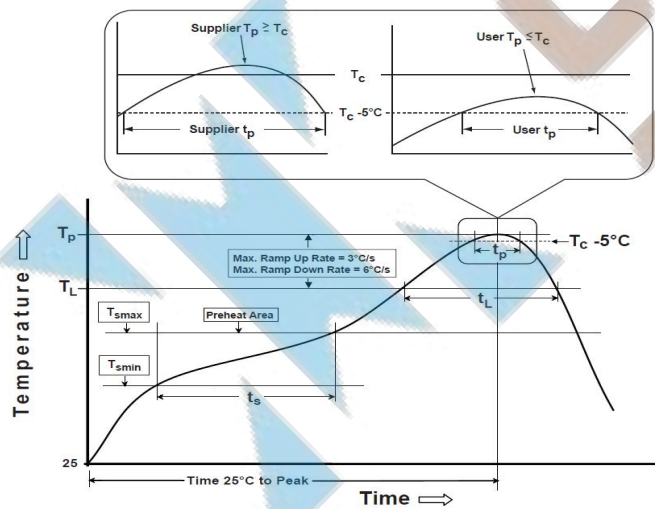
Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SOT23	7'	178	3	210*208*203	45	440*400*230	180

Recommended Soldering Profile for Rectifier Diodes (Pb Free)

a) Wave Soldering Profile



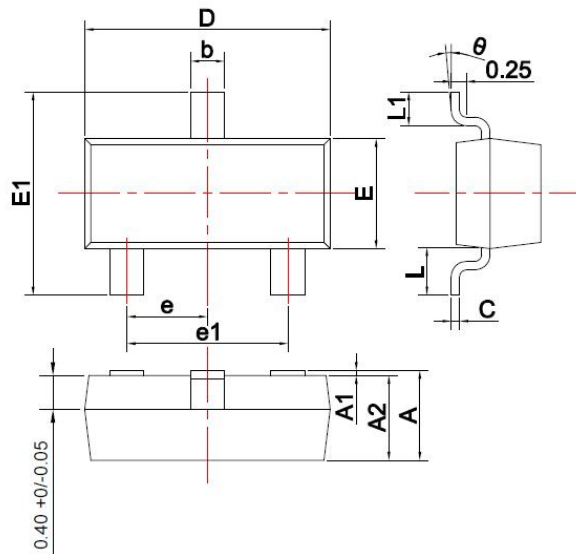
b) Reflow Soldering Profile (Pb Free Application), refer to IPC/JEDEC J-STD-020



Preheat/Soak Temperature Min (Tsmin) Temperature Max (Tsmax) Time (ts) from (Tsmin to Tsmax)	50 °C 200 °C 60-120 seconds
Melting Point of Solder (Sn Ag Cu)	217°C
Ramp-up Rate to 217°C(Melting Point of Solder)	3°C/sec
Time at Temp.>217°C (Melting Point of Solder)	60~150 Sec
Peak Temperature	255±5°C
Time within 5°Cbelow Peak Temp.	20~40 Sec
Cooling Rate	6°C/sec (max)
Time from 25°C to Peak Temp.	8min (max)

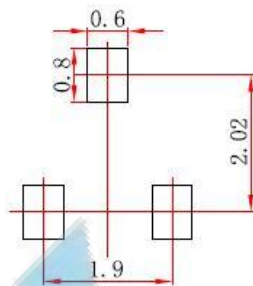
c) Manual Soldering

When using an electric soldering iron for manual soldering, it is recommended that the temperature does not exceed 300°C and the soldering time is less than 10 seconds.

Package Mechanical Data


SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Unit: mm

Suggested Pad Layout

Note:

1. Controlling dimension: In millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

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